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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/601,789

06/24/2003

Norio Kimura

2003-0865

9516

513 7590 12/27/2006
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WASHINGTON, DC 20006-1021

EXAMINER

SHAKERI, HADI

ART UNIT

PAPER NUMBER

3723

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/27/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/601,789

Applicant(s)

KIMURA ET AL.

Examiner

Hadi Shakeri

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 44-46 and 49-53 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 44-46 and 49-53 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date: ____ | 6) <input type="checkbox"/> Other: ____ |

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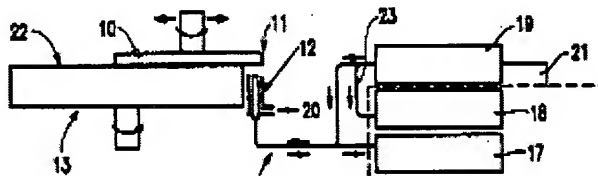
DETAILED ACTION***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

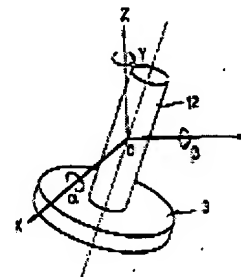
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 49-53 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Lebel et al. (6,334,807) in view of Watanabe et al. (5,951,368).

Lebel et al. meets all of the limitations of claims 49 and 50, i.e., a polishing table (13) having a polishing surface substantially 1.5 times the diameter of the lower surface of a substrate carrier (11) for holding a substrate (10) and bringing the substrate into contact with said polishing surface, a liquid supply nozzle (supplying 22), and a film thickness measurement device (14, 16-19) for determining an end point of the polishing and being positioned at an outer peripheral portion of the table, except for disclosing an attitude control mechanism for keeping the lower surface of the substrate carrier parallel with the polishing surface.



Watanabe et al. teaches polishing apparatus, which can control the attitude of the top ring with respect to a surface of a turntable of a polishing apparatus.



It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Lebel et al. with the attitude control mechanism as taught by Watanabe et al. to provide a uniform polishing surface pressure across the entire polish surface.

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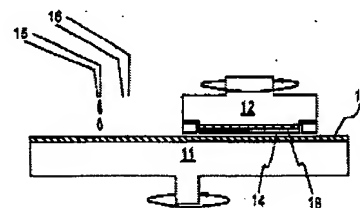
Lebel et al. as modified Watanabe et al., meets the new limitations, i.e., the attitude control mechanism operable to calculate a force based on a rotational moment and a directional friction force acting on the carrier and the contact area, e.g., Watanabe (02:1-5), X and Y sensors, e.g., 18x and 18y.

Regarding claim 52, Lebel et al. as modified by Watanabe et al. meets all of the limitations, except for the means of controlling the temperature, however, Lebel et al. discloses that it is known to control the polishing parameters, e.g., temperature, to enhance the operation (01:11-44), it is considered to be within the knowledge of one of ordinary skill in the art, to make such adjustments by controlling the temperature of the slurry.

3. Claims 44-46 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Lebel et al. (6,334,807) in view of Watanabe et al. (5,951,368) and Osterheld (6,616,513).

Lebel et al. as modified by Watanabe et al. in enhancing the operation by providing uniform surface pressure across the wafer as applied to claims 49-53 meets all of the limitations of the above claims, except for disclosing a nozzle providing water to the pad.

Osterheld discloses that a typical polishing apparatus includes a water nozzle for rinsing the pad. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to further modify the modified invention of Lebel et al. and Watanabe et al., with the water nozzle as taught by Osterheld to rinse the pad.

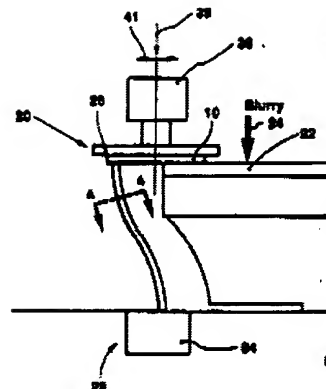


4. Claims 50-52 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz (Re. 34,425) in view of Watanabe et al. (5,951,368).

Schultz discloses all of the limitations of the above claims, i.e., a polishing table (22) having a polishing surface, a substrate carrier (26) having a lower surface for holding a

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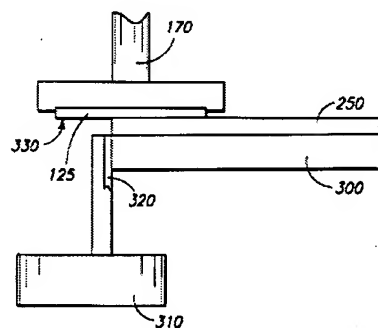
substrate (10) and bringing the substrate into contact with said polishing surface, a liquid supply nozzle (supplying 24), water nozzle to wet the pad (05:1-2) and a nozzle to spray the wafer (52), and a film thickness measurement device (28) for determining an end point of the polishing and being positioned at an outer peripheral portion of the table, except for disclosing an attitude control mechanism for keeping the lower surface of the



substrate carrier parallel with the polishing surface, obvious modification in view of Watanabe et al. as indicated above. Regarding claim 52, the combination meets the limitations, i.e., a liquid supply nozzle; the narrative and/or function language of controlling a temperature of the polishing liquid is considered met as it is narrative and claim does not recite an element to perform the function and as such setting a room temperature would read over the claim.

5. Claims 50-52 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Lenkersdorfer (6,213,844) in view of Watanabe et al.

Lenkersdorfer discloses all of the limitations of the above claims, i.e., a polishing table (300) having a polishing surface (250), a substrate carrier (170) having a lower surface for holding a substrate (125) and bringing the substrate into contact with said polishing surface, a liquid supply nozzle (not shown), water nozzle (320) to spray the



wafer, and a film thickness measurement device (310) for determining an end point of the polishing and being positioned at an outer peripheral portion of the table, except for disclosing an attitude control mechanism for keeping the lower surface of the substrate carrier parallel with the polishing surface, obvious modification in view of Watanabe et al. as indicated above.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Response to Arguments

7. Applicant's arguments filed on November 13, 2006 have been fully considered but they are not persuasive. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

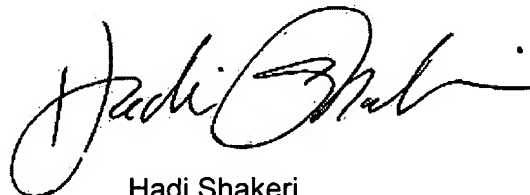
The argument that that Watanabe et al. is not concern with overhanging condition may be true but it does exclude the reference in combination with the base references in reading over the claims. Watanabe et al. teaches the problem with prior art attitude control mechanism that it did not compensate for moment and frictional forces causing "plunging", and remedies this problem with an attitude control mechanism controlling the tilt angle in response to signals from thrust and radial displacement sensors.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is 571-272-4495. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail, III can be reached on 571-272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Hadi Shakeri', with a stylized flourish at the end.

Hadi Shakeri
Primary Examiner
Art Unit 3723

December 18, 2006